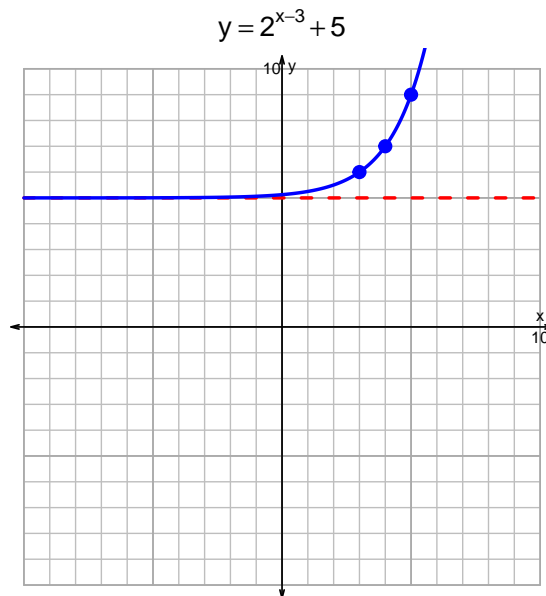
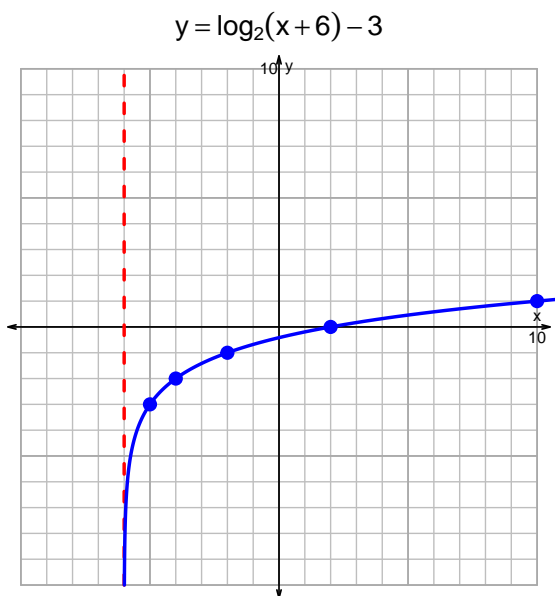


Name: _____

Date: _____

s18QUIZ: EXP LOG (SOLUTION v2)

- Graph $y = \log_2(x + 6) - 3$ and $y = 2^{x-3} + 5$ on the grids below. Also, draw any asymptotes with dotted lines.



- Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$13 = \left(\frac{4}{5}\right) \cdot 2^{3t/7}$$

Divide both sides by $\frac{4}{5}$.

$$\frac{13 \cdot 5}{4} = 2^{3t/7}$$

Take log, base 2, of both sides.

$$\log_2 \left(\frac{13 \cdot 5}{4} \right) = \frac{3t}{7}$$

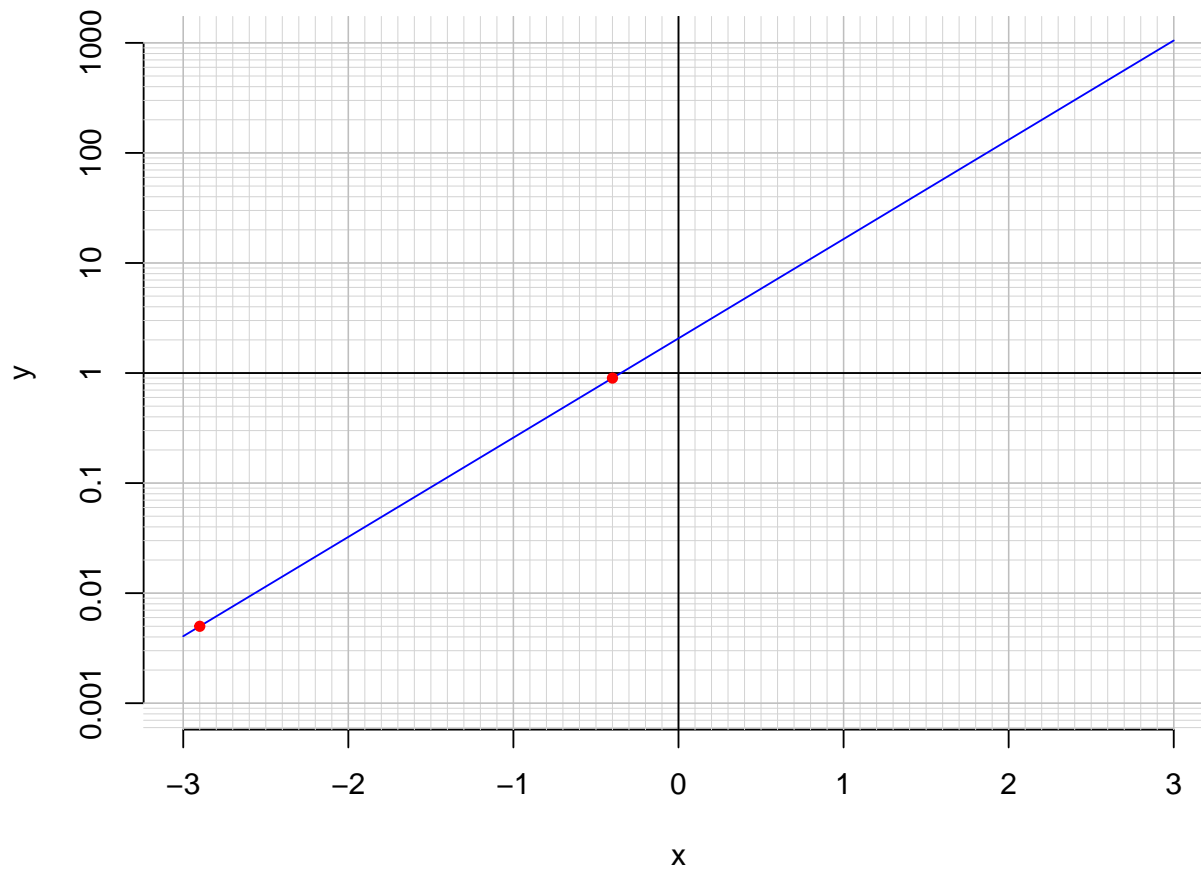
Divide both sides by $\frac{3}{7}$.

$$\frac{7}{3} \cdot \log_2 \left(\frac{13 \cdot 5}{4} \right) = t$$

Switch sides.

$$t = \frac{7}{3} \cdot \log_2 \left(\frac{13 \cdot 5}{4} \right)$$

3. An exponential function $f(x) = 2.07 \cdot e^{2.08x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(-0.4)$.

$$f(-0.4) = 0.9$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{1}{2.08} \cdot \ln\left(\frac{x}{2.07}\right)$$

- c. Using the plot above, evaluate $f^{-1}(0.005)$.

$$f^{-1}(0.005) = -2.9$$